

<p style="text-align: center;"><u>SAN JUAN RIVER *</u></p> <p style="text-align: center;">West Montezuma Creek to River Mile 9</p>			
Length In Miles	Outstandingly Remarkable Values - ORVs	Level of Significance	Tentative Classification
24	<ul style="list-style-type: none"> • Fish • Recreation • Wildlife • Historic • Cultural 	<ul style="list-style-type: none"> • National • National • National • Regional • National 	Recreational

* The North side of the San Juan is under BLM Monticello Field Office management, San Juan SRMA. The South side falls under the jurisdiction and administration of the Navajo Nation. The Navajo Nation and Monticello Field Office area boundary is located at the centerline of the San Juan River.

Description of Outstandingly Remarkable Values (ORVs):

- **Fish** - The San Juan River, which is part of the Upper Colorado River system, has a unique resident fish population for more than two-thirds of the native fish are endemic. This river contains designated critical habitat for the endangered Bonytail chub, Humpback chub, Colorado squawfish and the Razorback sucker. These endangered species are also listed as “protected” in Utah under state laws. The first three species are found no where else in the world besides the Colorado River system. The San Juan River is also home to the Bluehead sucker and Flannelmouth sucker, which are listed as Species of Special Concern (any wildlife species or subspecies that has experienced a substantial decrease in population, distribution and/or habitat availability) for the state of Utah.
- **Recreation** – Montezuma Creek is the put-in for one or two-day, flat water float trips to Sand Island. The San Juan is a braided river in this section and flows from open countryside into towering sandstone formations, with archeological sites and rock art. Seven miles down river from Sand Island, the most popular put-in for the San Juan, the river cuts through Comb Ridge, a prominent 90 mile long uplift that stretches from the Abajo Mountains near Monticello to Kayenta, in northern Arizona. Camping along the northern side of the river and hiking to prehistoric archeological and rock art sites are among the recreation opportunities that draw thousands of visitors annually.

Running the San Juan from Montezuma Creek to the Mexican Hat take out and/or to the Clay Hills take-out is a permitted activity due to the immense demand (three year average 2000-2002 is slightly over 40,000 user days/year). Camping or hiking on the southern side, the Navajo Reservation, is by permit through the Navajo Tribe.

Sand Waves – Sand waves form in response to the cyclic accumulation of the sandy ripples long the river bottom. The river's steep gradient or slope of approximately 8 feet per mile, the highest gradient of any major southwestern river, and the high load of sand and silt, contributes to the creation of sand waves. The waves can grow to several feet, yet are relatively safe because they don't hide underlying rocks. The waves migrate upstream and increase in size until they become so large they are washed out. Occurrence is most common along the first nine miles downstream from Sand Island and in the Goosenecks.

- **Wildlife** – This portion of the San Juan River provides or is potential habitat for the following threatened or endangered species: Bald eagle, Southwestern willow flycatcher, and the Yellow-billed cuckoo (candidate species). The river also provides critical habitat for peregrine falcon, cooper's hawk, and other raptors, migrating and nesting neo-tropical birds, and the Northern river otter, which is a species of special concern for Utah. The San Juan River provides habitat for Lucy's warbler and Broad-tailed hummingbird, which are species on the Utah Partners in Flight Priority Species.
- **Historic** – The segment contains historic sites associated with the settlement and development of Southeastern Utah. Some of the most critical events in that settlement process took place in the vicinity of the convergence of Comb Ridge and the San Juan River. These include the epic "Hole in the Rock" journey, the construction and abandonment of Barton's Trading Post, and the early attempts at irrigation from the San Juan River. The San Juan River was designated as the northern boundary of the Navajo Reservation from just west of Montezuma Creek to Glen Canyon National Recreation Area..
- **Cultural** – There is no doubt that the San Juan River Valley was heavily populated in prehistoric times. The riverbank has washed much of the evidence of that occupation away. What does remain is rock art that is unsurpassed on the Colorado Plateau. Several of the rock art sites are recognized as "Type Sites" for specific rock art motifs, because they are so wonderfully expressed and are so well preserved.

SAN JUAN RIVER *

River Mile 9 to River Mile 23

Length
In Miles

- **Geologic** – The deeply incised San Juan canyon cuts across the broad anticlinal structure of the Monument upwarp, making it a textbook example of a transverse canyon. Whether the San Juan canyon was formed through geomorphic processes of antecedence or superposition is the subject of great interest and debate among geologists. The San Juan River is somewhat famous for its sandwaves or antidunes, and Algal Banks.

Sand Waves – Sand waves form in response to the cyclic accumulation of the sandy ripples long the river bottom. The river's steep gradient or slope of approximately 8 feet per mile, and the high load of sand and silt, contributes to the creation of sand waves. The waves can grow to several feet, yet are relatively safe because they don't hide underlying rocks. The waves migrate upstream and increase in size until they become so large they are washed out. Occurrence is most common along the first nine miles downstream from Sand Island and in the Goosenecks.

Algal Banks – Algal bioherms or mounds occur in the Desert Creek and Ismay stages of the Pennsylvanian Paradox Formation. These mounds consist of fragments of alga, which resemble beds of fossilized corn flakes. Similar algal mounds are major producers of oil and gas in the Paradox Basin of Utah, Colorado, and Arizona. Algal banks exposed along the San Juan River afford geologists a rare opportunity to study the reservoir-facies characteristics and geometry of these stratigraphic oil traps in outcrops. They provide a production-scale analogue for reservoir modeling and design and implementation of enhanced hydrocarbon recovery programs in the Paradox Basin.

- **Wildlife** – This portion of the San Juan River provides or is potential habitat for the following threatened or endangered species: bald eagle, Southwestern willow flycatcher, and the Yellow-billed cuckoo (candidate species). The river also provides critical habitat for peregrine falcon, cooper's hawk, and other raptors, migrating and nesting neo-tropical birds, and the Northern river otter, which is a species of special concern for Utah. The San Juan River provides habitat for Lucy's warbler and Broad-tailed hummingbird, which are species on the Utah Partners in Flight Priority Species.

<p style="text-align: center;"><u>SAN JUAN RIVER</u> *</p> <p style="text-align: center;">River Mile 23 to River Mile 28</p>			
Length In Miles	Outstandingly Remarkable Values - ORVS	Level of Significance	Tentative Classification
5	<ul style="list-style-type: none"> • Scenic • Fish • Recreation • Wildlife 	<ul style="list-style-type: none"> • Regional • National • National • National 	Recreational

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Description of Outstandingly Remarkable Values ORVs:

- **Scenic** – This segment begins in a river float that parallels the base of the Raplee Anticline, a spectacular section of contrasting color caused by the interbedded sandstone and limestone, which have been tilted and eroded, forming the unique “Navajo Rug” formation of zigzag lines of colored rock, as well as the nationally recognized “Mexican Hat” formation. Next in view are the variously carved spires of the Cedar Mesa Sandstone, and an excellent view of the exposed volcanic neck called “Alhambra”.
- **Fish** – Designated critical habitat for Colorado pikeminnow and Razorback sucker (N) found nowhere else in the world besides the Colorado River and its tributaries.
- **Recreation** – This short section of the San Juan River fills the river runner’s experience with spectacular views (described above) of the many differing geological formations surrounding the river.
- **Wildlife** – The San Juan River provides abitat for wintering eagles and nesting peregrine falcons (N). It is a major migration route for neo-tropical birds (N), and habitat for Northern river otter, which is a Species of Special Concern for Utah, and desert bighorn sheep (R). The San Juan River provides habitat for Lucy’s warbler and Broad-tailed hummingbird, which are species on the Utah Partners in Flight Priority Species.

<p style="text-align: center;"><u>SAN JUAN RIVER</u> *</p> <p style="text-align: center;">River Mile 28 to Glen Canyon National Recreation Area at River Mile 45</p>			
Length In Miles	Outstandingly Remarkable Values – ORVs	Level of Significance	Tentative Classification
17	<ul style="list-style-type: none"> • Scenic • Fish • Recreation • Geologic • Wildlife 	<ul style="list-style-type: none"> • National • National • National • National • National 	Wild

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Description of Outstandingly Remarkable Values (ORVs):

- **Scenic** – This San Juan River segment is one of the deepest in the entire Navajo Canyonlands Ecological Section with canyon walls over 1200 feet high. This spectacular Goosenecks section is one of the finest examples of entrenched river meanders in the United States and is significant nationally. A float through this section allows unique views across the low “necks” of the meander loops to the canyon walls of the opposite side of the loop. There is extreme visual contrast between the limestone walls of the inner gorge and views of the red Cedar Mesa Sandstone, towering an additional 800 feet on the terraces above.
- **Fish** – The San Juan River, which is part of the Upper Colorado River system, has a unique resident fish population, for more than two-thirds of the native fish are endemic. This river contains designated critical habitat for the endangered Bonytail chub, Humpback chub, Colorado squawfish and the Razorback sucker. These endangered species are also listed as “protected” in Utah under state laws. The first three species are found nowhere else in the world besides the Colorado River system. The San Juan River is also home to the Bluehead sucker and Flannelmouth sucker which are listed as Species of Special Concern (any wildlife species or subspecies that has experienced a substantial decrease in population, distribution and/or habitat availability) for the state of Utah.
- **Recreation** – Below the town of Mexican Hat the boater winds through high walled, entrenched meanders in a remote area with very limited access. Solitude, spectacular geology, historical mining sites, and opportunities for remarkable side canyon hiking surround the visitor. Class II and one Class III rapid (Government) make this an exciting multi-day river run. Camping is in specific permitted

campsites due to the high use demand and the few appropriate sites available along the high cliff walls.

- **Geologic** - – The deeply incised San Juan canyon cuts across the broad anticlinal structure of the Monument upwarp, making it a textbook example of a transverse canyon. Whether the San Juan canyon was formed through geomorphic processes of antecedence or superposition is the subject of great interest and debate among geologists. The San Juan River is somewhat famous for its sandwaves or antidunes. Exposed fossil algal banks in the Desert Creek and Ismay stages of the Pennsylvanian Paradox Formation afford geologists a rare opportunity to study, in outcrop sections, the facies relationships of these stratigraphic oil traps found in the Paradox basin and other evaporite basins.

Sand Waves – Sand waves form in response to the cyclic accumulation of the sandy ripples long the river bottom. The river's steep gradient or slope of approximately 8 feet per mile, and the high load of sand and silt, contributes to the creation of sand waves. The waves can grow to several feet, yet are relatively safe because they don't hide underlying rocks. The waves migrate upstream and increase in size until they become so large they are washed out. Occurrence is most common along the first nine miles downstream from Sand Island and in the Goosenecks.

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Goosenecks - The Goosenecks of the San Juan River are possibly the best known entrenched meanders in North America. The remarkable view from the top of the cliffs above this section of the San Juan River prompted Utah to designate the area Gooseneck State Park

- **Wildlife** – The San Juan River, which is part of the Upper Colorado River system, has a unique resident fish population for more than two-thirds of the native fish are endemic. This river contains designated critical habitat for the endangered Bonytail chub, Humpback chub, Colorado squawfish and the Razorback sucker. These endangered species are also listed as “protected” in Utah under state laws. The first three species are found nowhere else in the world besides the Colorado River system. The San Juan River is also home to the

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